

Offer to Surrender

At page 2 of the Office Action, the Examiner asserts that this reissue application was filed without the required offer to surrender the original patent. This assertion is clearly in error. Page 2 of a paper entitled "Consent of Assignee to Filing of Reissue Application and Offer to Surrender Original Patent" which was provided with the reissue application clearly states:

Pursuant to 37 C.F.R. §1.178, Fujitsu Limited hereby offers to surrender original U.S. Letters Patent 5,739,667.

It is respectfully requested that the Examiner withdraw this objection.

Litigation Information, Prior and Concurrent Proceedings

Neither applicants, applicants' attorneys nor any other individual associated with filing and prosecuting this reissue application is aware of any litigation information or any prior concurrent proceeding which is material to the patentability of the claims under consideration in the present reissue application.

Reissue Declaration

The Examiner states that the applicants need to submit a Supplemental Reissue Oath/Declaration in accordance with MPEP 1414.01, since new claims have been added to the originally submitted case. Applicants will submit the Supplemental Reissue Oath/Declaration at an appropriate time in the prosecution in accordance with the following guidelines provided in the MPEP 1444:

"Once the reissue oath/declaration is found to comply with 37 CFR 1.175(a), it is not required, nor is it suggested that a new reissue oath/declaration be submitted together with each new amendment and correction of error in the patent. During the prosecution of a reissue application, amendments are often made and additional errors in the patent are corrected. A supplemental oath/declaration need not be submitted with each amendment and additional correction. Rather, it is suggested that the reissue applicant wait until the case is in condition for allowance, and then submit a cumulative reissue oath/declaration pursuant to 37 C.F.R 1.175(b)(1)."

Restriction, Election and Request for Reconsideration of Restriction Requirement

At pages 2-3 of the Office Action, the Examiner states that claims 1-117 have been constructively elected for prosecution. The Examiner states that the claims originally presented and acted upon by the Office on their merits determine the invention elected by an applicant in the application, and in any request for continued examination (RCE) which has been filed for the application. The operative words in the preceding sentence are "determine the invention" and not determine the claims with which the invention is described.

The Examiner alleges that claims 118-147 are related to inventions which are independent and distinct from the invention described in claims 1-117. MPEP 808.01 states that inventions are independent and distinct "where they are not connected in design, operation or effect under the disclosure of the particular application under consideration." In the present application, at least one connecting effect of the invention is the charging of a battery. Further, even if a plurality of inventions are included in the different claim groups, the inventions are so closely related in purpose that the claims should be examined in the same application. Applicants respectfully request that the restriction requirement be withdrawn.

The 35 U.S.C. §112 Rejection

At page 4 of the Office Action, claims 11-117 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 11-15, the Examiner asserts that "the power charged to the battery becomes a value assigned in advance" is confusing since "the power" is not a measurable battery parameter.

Applicants respectfully disagree. For example, claim 11 recites "a charge control circuit for controlling the charger to control the charging power the charger supplies to the battery so that a sum of the power applied to the load and the power charged to the battery becomes a value assigned in advance." According to an embodiment of the invention, the sum of the current applied to the load and the current charged in the battery is made to become a constant value. A value of the maximum DC current output from an AC adapter minus the current applied to the load is made to be a charging current value. The AC adapter produces a constant DC output voltage and current supplied to the load and the current supplied to the battery vary. Since the output voltage is constant, it can necessarily be concluded that "the charging current + the current applied to the load = a constant value" is equivalent to "the charging power + the power applied to the load = a constant value." Taking the above

equivalence into consideration, the Applicants use the term "power" instead of "current" in claim 11.

The Examiner asserts that "power" is not a measurable battery parameter. However, the phrase "the power charged in the battery becomes a value assigned in advance," which is pointed out by the Examiner, expresses the result of the control, and thus should not be interpreted as requiring a "measurable parameter." Therefore, the Applicants respectfully submit that the Examiner's comment is incorrect.

Regarding claim 12, the term "value" in claim 12 corresponds to the "current" and the term "value" in claim 13 corresponds to the "voltage." The Applicants respectfully submit that no indefiniteness is created by the use of the term "value" in claims 12 and 13.

Regarding claim 15, the Applicants use the term "power" for the same reason as mentioned above regarding claim 11.

The 35 U.S.C. §103 Rejection:

At page 4 of the Office Action, claims 11-117 are rejected under 35 U.S.C. §102(a) as being unpatentable over WO/93/19508. This rejection is respectfully traversed.

The Examiner's reasons for rejection appear to be identical to the Examiner's reasons for rejection cited in the Office Action mailed May 1, 2001. The Applicants responded to each of these reasons in an Amendment after Final Rejection filed October 23, 2001, which was incorporated by reference in a Request for Continued Examination filed October 31, 2001.

It appears from the record that the Examiner did not consider the response filed on October 23, 2001. This is based on the statement in the present Office Action at page 7 in a paragraph 11, entitled Response to Arguments which reads as follows: "[Applicants] arguments filed on March 19, 2001 have been fully considered but they are not persuasive in view of the above art rejection."

The following remarks were included in the response filed on October 23, 2001 and are repeated here. Additional remarks follow the October 23, 2001 remarks. It is respectfully requested that the Examiner reconsider the 35 U.S.C. §103(a) rejection in view of the October 23, 2001 remarks and the presently presented additional remarks which follow.

October 23, 2001 Remarks

To support a finding of obviousness based on a single reference, the single reference must suggest the desirability of modifying the disclosure of the single reference as needed to accomplish the invention (see *In re Gordon*, 733 F.2d 900,221 U.S.P.Q. 1125 (Fed.Cir.1984), *Schneck v. Gordon*, 713 F.2d 782,218 U.S.P.Q. 699(Fed.Cir.1984) and *Cooper v. Ford*, 748 F.2d 677,223 U.S.P.Q. 1286(Fed.Cir.1984)).

The disclosure of WO 93/19508 is significantly different from the present invention. WO 93/19508 makes no attempt to control the current to the battery so that the current to the battery varies as the current to the load varies or to control the current to the battery so that the capacity of the AC adaptor is not exceeded. The WO 93/19508 charger has modes of constant current, trickle charge, and OFF in relation to the battery. WO 93/19508 also has a mode where the battery is disconnected and the charger/regulator enters a constant voltage mode to supply the load. In WO 93/19508, the AC adaptor must be capable of supplying the maximum charging current of the battery and the maximum current of the load simultaneously. Thus, the features of the present invention which vary the current to the battery to limit the current to the battery and the current to the load to a value are unnecessary in the charger/regulator of WO 93/19508.

As shown in Fig. 2 of WO93/19508, the system of WO93/19508 senses a charging current at a SENSING AND CONTROL 404 and controls a charger output voltage by the thus sensed charging current. In WO93/19508, the charger output voltage is so controlled that the charging current to a battery becomes constant. See page 6, line 37 to page 7, line 30 of WO93/19508.

Regarding claims 11-34 of the present invention, the charger is controlled so that a sum of the power applied to the load and the power charged to the battery becomes a value which is assigned in advance. On the other hand, the system of WO93/19508 controls the charger output voltage so that the current applied to the battery becomes constant. Accordingly, claims 11 to 34 of the present invention are different from WO93/19508. Also, as the Examiner recognized with respect to WO93/19508, in item 6 of the current Office Action, i.e., "controlling the power . . . so that regardless of the rate of charge of the battery 402, a constant current is maintained for charging the battery 402", that WO93/19508 is different from the present invention as claimed in claims 11-34. Accordingly, claims 11-34 would not have been obvious in view of WO93/19508.

Regarding claims 35-88, an input voltage from a power source is detected and a charging power is controlled according to the detected input voltage. On the other hand, the system of WO93/19508 senses a charging current of the battery, controls a charger output voltage according to the sensed charging current and thereby maintains the charging current constant. Accordingly, claims 35-88 would not have been obvious in view of WO93/19508.

Regarding claims 89-100, the charger is so controlled that a sum of the power applied to the load and the power fed to the battery becomes a value which is assigned in advance. On the other hand, the system of WO93/19508 controls the charger output voltage so that the current applied to the battery becomes constant. Accordingly, claims 89-100 of the present invention are different from WO93/19508. Also, as the Examiner recognized with respect to WO93/19508, in item 6 of the current Office Action, i.e., "controlling the power . . . so that regardless of the rate of charge of the battery 402, a constant current is maintained for charging the battery 402", WO93/19508 is different from the present invention. Accordingly, claims 89-100 would not have been obvious in view of WO93/19508.

Regarding claims 101-112, a power input from a power source of an input section applies power to both a battery and a load. A power input sensor obtains power input information by sensing the input of power from the input section. A charge control circuit controls the charging power a charger supplies to the battery based on the sensed input information so that a sum of the power applied to a load and the power charged to a battery from the input section is substantially in a current range in which said output voltage of the power source is substantially the constant voltage.

In WO93/19508, the unit 404 senses a current. However, the unit 404 senses only the charging current. Accordingly, claims 101-112 and WO93/19508 differ in object to be sensed. Further, in claims 101-112, the control is made so as not to allow the voltage of the input to deviate beyond a constant voltage range. The system of WO93/19508 senses the charging current and changes the charger output voltage so as to make the charging current become constant. Accordingly, claims 101-112 would not have been obvious in view of WO93/19508.

Regarding claims 113-117, it is disclosed that a sense resistor for a charger control is used for detecting a discharge of a battery so as to predict the remaining amount of charge in the battery. The Examiner did not provide any substantive reasons for rejection of these claims.

Regarding claims 118-129 of the present invention, an input from the charger is sensed. This input is used for applying power to both the battery and the load. The unit 404 of the WO93/19508 also senses a current. However, the unit 404 senses only the charging current. Accordingly, claims 118-129 and WO93/19508 differ in object to be sensed. Further, in claims 118-129, the control is made so as not to allow the voltage of the input to deviate beyond a constant voltage range. The system of WO93/19508 senses the charging current and changes the charger output voltage so as to make the charging current become constant. Accordingly, claims 118-129 are quite different from WO93/19508.

Regarding claims 130-132 of the present invention, a power converter regulator is further provide for varying the control input so as to limit the current drawn from the power converter to a power converter maximum output current. On the other hand, the system of WO93/19508 senses the charging current and changes the charger output voltage so as to make the charging current become constant. Accordingly, claims 130-132 would not have been obvious. Claims 130-132 have been amended to change the term "power supply circuit" to "control circuit" so as to avoid any inference which may have existed that the "power supply circuit" included an AC/DC converter.

In the October 23, 2001 response, claims 7 and 8 were amended to correct spelling and grammatical errors only. Therein it was pointed out that new claims 133-147 are similar to claims 11-25 and differ from claims 11-25 in that claims 133-147 are recited in terms of charging current rather than in terms of charging power as recited in claims 11-25.

Additional Remarks

In WO93/19508, a personal computer and a battery are connected in parallel to an output of an AC adaptor and the battery is charged by applying the output of the AC adaptor directly to the battery. The output voltage of the AC adaptor is controlled by sensing the charging current of the battery so that the charging current becomes constant. Namely, WO93/19508 varies the output voltage of the AC adaptor so that the charging current of the battery becomes constant even if a power consumption of the PC varies.

On the other hand, in the present invention the charging current from the output of the AC adaptor is branched into the load and the charger and flows therethrough. According to the present invention, the charging current is controlled so that a sum of the current to the load and the charging current becomes constant. Namely, if it is assumed that the maximum output current of the AC adaptor is 10, when the load uses 7, the charging current becomes 3 (*i.e.*, $10-7$), and when the load uses 6, the charging current becomes 4 (*i.e.*, $10-6$).

In the present invention, the maximum output of the AC adaptor minus the current applied to the load is used as the charging current for the battery.

Judging from the Examiner's comments, the Examiner apparently understands that, in WO93/19508, the charging current is constant. WO93/19508 varies the output voltage of the AC adaptor so that the charging current of the battery becomes constant even if a current (or a power) consumed by the load varies.

On the other hand, according to the present invention, the charging current is varied depending on the current consumed by the load so that the output power (or current) of the AC adaptor becomes a predetermined value (*i.e.*, the maximum output current of the AC adapter in the embodiment of the present invention.)

Summary

It is respectfully requested that the restriction requirement restricting claims 118-147 from examination be withdrawn and that the Examiner consider claims 1-147 within the present application. Applicants submit that the prior art does not disclose or suggest the invention as claimed in claims 1-147 and thus claims 1-147 define subject matter patentable over the prior art.

If there are any formal matters remaining after this response, the Examiner is requested

to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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